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**Amendments to the Claims:**

This listing of Claims will replace all prior versions and listings of Claims in the Application.

**Listing of Claims:**

Please Amend the Claims as Follows:

**Claim 1 (original): A multilayer structure, comprising:**

a silicon based substrate; and

an epitaxial  $Cd_{1-z}Zn_xX_xX'_{1-x}$  film grown on the silicon based substrate, where X is a chalcogenide selected from the group consisting of S and Se; X' is a higher atomic number chalcogenide relative to X and X' is selected from the group consisting of S, Se and Te; x is a number greater than zero and less than 1; and z is a number greater than or equal to zero and less than one.

**Claim 2 (original): The structure of claim 1 wherein X is Se and X' is Te.**

**Claim 3 (original): The structure of claim 2 wherein z is zero.**

**Claim 4 (original): The multilayer structure of claim 1, wherein the silicon based substrate has a  $CdX'$  overlayer in contact with the  $Cd_{1-z}Zn_xX_xX'_{1-x}$  film.**

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**Claim 5 (original):** The multilayer structure of claim 1, wherein the silicon based substrate is a single crystal.

**Claim 6 (original):** The multilayer structure of claim 1, wherein  $x+z$  is less than 0.10.

**Claim 7 (original):** The multilayer structure of claim 1, wherein  $x+z$  is between 0.01 and 0.08.

**Claim 8 (original):** The multilayer structure of claim 1, wherein  $x+z$  is between 0.03 and 0.05.

**Claim 9 (original):** The multilayer structure of claim 3, wherein  $x$  is between 0.01 and 0.08.

**Claim 10 (original):** The multilayer structure of claim 3, wherein  $x$  is between 0.03 and 0.05.

**Claim 11 (original):** The multilayer structure of claim 1, wherein the  $Cd_{1-x}Zn_xX_xX'_{1-x}$  film has a surface defect density equal to or less than 2000 per centimeter squared.

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**Claim 12 (original):** The multilayer structure of claim 11, wherein the surface defect density is less than 500 per square centimeter.

**Claim 13 (original):** The multilayer structure of claim 1, further comprising a  $Hg_{1-y}Cd_yTe$  layer grown on the  $Cd_{1-x}Zn_xX_xX'_{1-x}$  film, the  $Hg_{1-y}Cd_yTe$  layer being substantially lattice matched to the  $Cd_{1-x}Zn_xX_xX'_{1-x}$  film.

**Claim 14 (original):** The multilayer structure of claim 13, wherein X is Se and X' is Te.

**Claim 15 (original):** The multilayer structure of claim 14, wherein  $x+z$  is between 0.01 and 0.08 and y is between 0.15 and 0.35.

**Claim 16 (original):** The multilayer structure of claim 13, wherein z is zero.

**Claim 17 (original):** The multilayer structure of claim 16, wherein X is Se and X' is Te.

**Claim 18 (original):** The multilayer structure of claim 16, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

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Claim 19 (original): The multilayer structure of claim 1, further comprising a cadmium chalcogenide layer grown on the  $\text{Cd}_{1-x}\text{Zn}_x\text{X}_x\text{X}'_{1-x}$  film.

Claim 20 (currently amended): The multilayer structure of claim 14 13 wherein the cadmium chalcogenide layer and the  $\text{Cd}_{1-x}\text{Zn}_x\text{X}_x\text{X}'_{1-x}$  film are substantially lattice matched.

Claim 21 (original): A  $\text{Cd}_{1-z}\text{Zn}_z\text{Se}_x\text{Te}_{1-x}$  film grown by molecular beam epitaxy on a silicon based substrate, where  $x$  is a number between zero and one inclusive and  $z$  is greater than zero and less than one.

Claim 22 (original): The  $\text{Cd}_{1-x}\text{Zn}_x\text{Se}_x\text{Te}_{1-x}$  film of claim 21 wherein  $x+z$  is less than 0.10.

Claim 23 (original): The  $\text{Cd}_{1-x}\text{Zn}_x\text{Se}_x\text{Te}_{1-x}$  film of claim 21, wherein the  $\text{Cd}_{1-x}\text{Zn}_x\text{Se}_x\text{Te}_{1-x}$  film has a surface defect density of less than 2000 per square centimeter.

Claim 24 (original): The  $\text{Cd}_{1-x}\text{Zn}_x\text{Se}_x\text{Te}_{1-x}$  film of claim 21, having an overlayer of  $\text{Hg}_{1-y}\text{Cd}_y\text{Te}$  thercon.

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Claim 25 (original): The  $Cd_{1-x}Zn_xSe_xTe_{1-x}$  film of claim 24, wherein the  $Cd_{1-x}Zn_xSe_xTe_{1-x}$  film is substantially lattice matched to the overlayer of  $Hg_{1-y}Cd_yTe$ .

Claim 26 (original): The film of claim 24, wherein  $x+z$  is between 0.01 and 0.08 and  $y$  is between 0.15 and 0.35.

Claim 27 (previously amended): The film of claim 21 wherein the  $Cd_{1-x}Zn_xSe_xTe_{1-x}$  film is grown from a  $Cd_{1-x}Zn_xTe$  source and a Se source.

Claim 28 (currently amended): A  $CdS_xTe_{1-x}$  film grown by molecular beam epitaxy on a silicon based substrate, where  $x$  is a number between 0 and 1 inclusive, inclusive and  $x$  is greater than zero and less than one.

Claim 29 (previously amended): The  $CdS_xTe_{1-x}$  film of claim 28 wherein  $x$  is less than 0.10.

Claim 30 (previously amended): The  $CdS_xTe_{1-x}$  film of claim 28, wherein the  $CdS_xTe_{1-x}$  film has a surface defect density of less than 2000 per square centimeter.

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**Claim 31 (previously amended):** The CdS<sub>x</sub>Te<sub>1-x</sub> film of claim 28, having an overlayer of Hg<sub>1-y</sub>Cd<sub>y</sub>Te thereon.

**Claim 32 (previously amended):** The CdS<sub>x</sub>Te<sub>1-x</sub> film of claim 31, wherein the CdS<sub>x</sub>Te<sub>1-x</sub> film is substantially lattice matched to the overlayer of Hg<sub>1-y</sub>Cd<sub>y</sub>Te.

**Claim 33 (original):** The film of claim 31, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

**Claim 34 (previously amended):** The film of claim 28 wherein the CdS<sub>x</sub>Te<sub>1-x</sub> film is grown from a CdTe source and a ~~Se S~~ source.

Claims 35-68 (Canceled).